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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/688,364 | 10/17/2003 | William Freeman | 15436.30.1 | 2301 |
| 22913 | 7590 | 11/22/2005 | EXAMINER | |
| WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111 | | | MENEFE, JAMES A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2828 | |

DATE MAILED: 11/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/688,364

Applicant(s)

FREEMAN ET AL.

Examiner

James A. Menefee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date: ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/21/2004</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Onaka et al. (US 5,867,300). See Fig. 13 and discussion thereof unless otherwise noted, though the entire document is relevant.

Regarding claim 1, Onaka discloses an optical attenuator comprising at least one polarizing element 10 having an optical polarization axis, wherein the polarizing element transmits a portion of an incident light signal 5 proportional to the angular difference between an optical polarization axis of the incident light signal and that of the polarizing element, and a variable Faraday rotator including a semi-transparent material 20, a magnetic material 62, 66 for applying a magnetic force to a light signal passed through the semi-transparent material, and a conductive wire 64 configured to induce a magnetic field on the magnetic material when a current i is passed through the wire.

Regarding claim 2, the polarizing element 10 comprises a polarizer having a linear optical property.

Regarding claim 3, Onaka describes in the discussion of the prior art that semi-transparent material is typically a garnet. Col. 3 lines 31-36. Onaka does not appear to discuss the material of Faraday element elsewhere, thus it may be presumed to be the same in Onaka's

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invention as in the prior art. This interpretation is reasonable, since Onaka describes a garnet as having unwanted wavelength dependence on rotation, *id.*, and one of the purposes of Onaka's configurations is to remove such dependence, *id.* at col. 3 lines 65-67. Onaka does not purport to remove such dependence by changing the material, so it is presumed the material remains a garnet. See also Ser. No. 08/704,946 (now US 5,812,304), incorporated by reference by Onaka at col. 8, and which describes such a semi-transparent material as a garnet. '304 at col. 6 lines 47-53.

Regarding claim 4, the magnetic material 62,66 comprises a permanent magnet portion 66. It is known in the art that a permanent magnet is a hard ferromagnetic material.

Regarding claim 5, the semi-transparent material 20 is at least partially enclosed in the magnetic material 62 (which surrounds 20 and can be said to "enclose" it). This is shown even more explicitly in other embodiments, e.g. Fig. 16.

Regarding claim 6, conductive wire 64 is a coil wrapped around the magnetic material.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-15 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaka.

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Regarding claim 7, Onaka discloses the first polarizing element and variable faraday rotator as in the above rejection of claim 1. Onaka further discloses a second polarizing element 30 that also transmits a portion of incident light proportional to the angular difference in polarization between the polarization axis of incident light and that of the second polarization element.

Further regarding claim 7, and regarding claims 8 and 15, it is not disclosed that the device is a laser or transceiver package and that the source is a laser or the specific lasers of claims 8. Onaka does disclose as in prior art Fig. 28 (see discussion in col. 1) that variable optical attenuators are typically used where the input signal is a laser diode (i.e. a generic semiconductor laser). The transmitter and receiver system of Fig. 28 can further be called a transceiver. It would have been obvious to one skilled in the art to use Onaka's variable optical attenuator in the system of prior art Fig. 28, rather than the typical optical attenuator, because it diminishes wavelength and temperature dependence of the attenuation, as taught by Onaka in col. 3 lines 65-67.

Regarding claim 9, it is not disclosed the laser is a DFB laser. As noted above, the laser is disclosed as a laser diode; DFB lasers are a type of laser diode, and it would have been obvious to one skilled in the art to use such a laser because it may be easily tuned to provide a desired output at a particular wavelength as is known.

Regarding claims 10-14, Onaka discloses the limitations as in the rejections of claims 2-6 above.

Regarding claim 32, Onaka discloses a method of attenuating light comprising directing a light signal to a first polarizing element, transmitting at least a portion of the light proportional to

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an angular difference between the polarization axis of the light signal and the polarizing element to a variable faraday rotator, and directing the light signal from the variable faraday rotator to a second polarizing element. As noted above, it is obvious that the light signal may be laser light.

Claims 16-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onaka in view of Uchida et al. (US 4,178,073).

Independent claims:

Regarding claim 16, Onaka discloses as in Fig. 20 an input light source from 92, an isolator 93, and an attenuator 96. The attenuator can be the device of Fig. 13. Col. 19 lines 54-58. The device of Fig. 13 includes the variable faraday rotator as claimed followed by a polarizing element. See the rejection of claim 1 above. Thus the variable faraday rotator as claimed and the third polarizing element are disclosed. There is not disclosed the first polarizing element, faraday rotator, and second polarizing element as claimed.

Uchida teaches in Fig. 1 that an isolator may include a first polarizing element 21, a faraday rotator including semi-transparent material 22 and magnetic material 26-27 at least partially surrounding the partially transparent material, and a second polarizing element 25. It would have been obvious to one skilled in the art to replace isolator 93 of Onaka with Uchida's isolator because it is polarization independent and provides little loss, as taught by Uchida. See col. 1 line 64-68.

Thus, with Uchida's isolator in place of Onaka's isolator 93, there is taught the first polarizing element as claimed, the faraday rotator as claimed, and the second polarizing element

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as claimed (all replacing 93), and then the variable faraday rotator and the third polarizing element as claimed (as part of attenuator 96).

Finally, it is not disclosed that the device is a laser package, but this is obvious in Onaka. See the above rejection of claim 7.

Regarding claim 24, the claim is taught similarly to claim 16 above. The claims only differ in that claim 24 is because it omits the polarizing element between the faraday rotator and the variable faraday rotator. Thus all the elements are taught as in the above rejection of claim 16.

Dependent claims:

Regarding claims 17-20, 22-23, 25-28, and 30-31, these limitations are either taught or disclosed by Onaka as in the above rejections.

Regarding claims 21 and 29, the magnetic material 26-27 of Uchida's isolator is disclosed as permanent magnets.

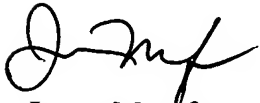
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'J Menefee', with a stylized flourish at the end.

James Menefee
November 16, 2005